THE EFFECT OF OLIVE OIL APPLICATION VERSUS HOT APPLICATION IN REDUCTION OF KNEE RELATED SYMPTOMS AMONG PATIENTS WITH OSTEOARTHRITIS IN SELECTED RURAL AREA AT VEERAGANUR

A Dissertation submitted to

THE TAMILNADU DR. M.G.R. MEDICAL UNIVERSITY CHENNAI

In partial fulfillment of the requirement for the award of degree of

MASTER OF SCIENCE IN NURSING

OCTOBER 2018

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Certified that this is the bonafide work of

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MEDICAL AND SURGICAL NURSING

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INTERNAL EXAMINER **EXTERNAL EXAMINER**

DECLARATION

I, 301611702 hereby declare that this dissertation entitled **"A STUDY TO ASSESS THE EFFECTIVENESS OF OLIVE OIL APPLICATION VERSUS HOT APPLICATION IN REDUCTION OF KNEE RELATED SYMPTOMS AMONG PATIENTS WITH OSTEOARTHRITIS IN SELECTED RURAL AREA AT VEERAGANUR"** has been prepared by me under the guidance and direct supervision of **Prof. V.J.ELIZABETH M.Sc., (N)** Vice-Principal, Thanthai Roever college of nursing, Perambalur, as requirement for partial fulfillment of **M.Sc. Nursing** degree course under **The Tamilnadu Dr. M.G.R. Medical University, Chennai – 32.** This dissertation had not been previously formed and this will not be used in future for award of any other degree or diploma. This dissertation represents an independent original work on the part of the candidate.

Place: Perambalur
Date: October - 2018

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THE STUDY TO ASSESS THE EFFECTIVENESS OF OLIVE OIL APPLICATION VERSUS HOT APPLICATION IN REDUCTION OF KNEE RELATED SYMPTOMS AMONG PATIENTS WITH OSTEOARTHRITIS IN SELECTED RURAL AREA AT VEERAGANUR

ABSTRACT

INTRODUCTION: Global estimates reveal more than 100 million people are affected by osteoarthritis worldwide. India is expected to be the chronic disease capital with 60 million people with arthritis, by 2025. As per a recent report published in the TIMES OF INDIA [2010] regarding osteoarthritis over 40% of the Indian population in the age group of 70 years of above suffer from osteoarthritis.

OBJECTIVES: To compare the effectiveness of olive oil application versus hot application on reduction of knee related symptoms among patients with knee osteoarthritis.

METHODS: True experimental pre-post post-test control group design was adopted for this study. The study was conducted in Veeraganur PHC at rural area. 60 participants were selected by simple random sampling technique and 30 were recruited to each group. The tool used for data collection was Knee injury and osteoarthritis outcome score scale to assess the knee related symptoms. Olive oil application to experimental group I and Hot application to experimental group II for twice a day for ten days was given to both groups.

RESULTS: The post-test mean score of experimental group I 18.3 $\pm$ 4.71 higher than that of experimental group II 23.43 $\pm$ 4.75 and the calculated 't' value 4.214 was significant at $p<0.001$ level.

DISCUSSION: The study proved that Olive oil application was effective than the Hot application on reduction of knee related symptoms among patients with knee osteoarthritis.

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CHAPTER - I
INTRODUCTION

"The aim of the wise is not to secure pleasure, but to avoid pain."

- Aristotle

Aging is a natural process. As people become older the functioning and adaptability of the tissues and different organs decline and chances of suffering of geriatric populations are more. It has been projected that by the year 2025 there will be 1.2 billion older persons, with two out of three living with osteoarthritis in a developing country. WHO reports (2010) worldwide, osteoarthritis affects 9.6% of men and 18% of women ages above 60 years or older and the condition will be the fourth leading cause of disability by 2020. Osteoarthritis in the aging population will generate a global avalanche of costs and disability.

India is likely to notice an endemic osteoarthritis with 80% of the above 65 years population suffering with wear and tear of joints. 40% of these people are likely to suffer from severe osteoarthritis, which will disable from daily activities (WHO 2013).

The prevalence of osteoarthritis varies according to the method used to detect it. Radio graphics prevalence showed that 75% of patients in the age group of 50-70 years had evidence of osteoarthritis of distal inter phalangeal joints of hand and prevalence rate of all joints sites study increase markedly with age in both men and women.

The prevalence of hand and knee osteoarthritis is similar among Europeans and Americans. There is a lower rate of hip osteoarthritis in Africans blacks. Asians, Indians and Hon Kong Chines. Most of the population in India is above the age group of 60 years 95% of them are less than 85 yrs in this 87% are having acute illness and 96% are having chronic illness. Hypertension, Cataract and Osteoarthritis were the 3 most common illnesses among older population in India.

The pain from osteoarthritis is the presenting complaint of clients and is localized, deep dull ache. The pain is due to subchondral bone changes, stretching of ligaments of nerve endings in periostium and inflamed or distended joint capsule client also experience pain with activity due to disability of hip and knee Osteoarthritis. While Osteoarthritis affects many joints of the body, the knee is the most commonly involved joint associated with disability.

Hip and knee osteoarthritis is one of the leading causes of global disability in patients. Globally, of the 291 conditions, hip and knee osteoarthritis was ranked as the 11th highest contributor to global disability and 38th highest in disability-adjusted life years (DALYs). Prevalence was higher in females than males. Pain relief is one of the major responsibility of nurses and research based evidence will enable nurses to achieve better pain relief for their patients. Hence a study was carried out among patients with knee osteoarthritis. Osteoarthritis is estimate to be the fourth leading cause of disability and one of the most common chronic health conditions impacting many health outcomes.

Olive oil is extracted from the ripened fruit, It is otherwise known as liquid gold. Olive oil is one of the most healing substances that can apply on body especially on osteoarthritis pain and it consists of a powerful inflammation – fighting compound. Olive oil application is one of traditional methods of pain reduction in patients with osteoarthritis.

About 80% of the people are having osteoarthritis the patients may experience severe pain during mobility due to that the patients are not able to do activities properly. Olive oil has significant effects on osteoarthritis pain.

NEED FOR THE STUDY

A physically active individual lives much healthier and active life than people who are physically inactive. This is true for everyone but especially for people with Osteoarthritis. In America 32.9 million Americans about (23% of adult populations) had some type of arthritis. In this 15% of the population experience long term complications due to Osteoarthritis related conditions. Pain and stiffness are the main features of Osteoarthritis and it may result in deformity disability.

The health statistics report stated that, Osteoarthritis of Knee based on racial categories 27% of Caucasian populations, 21% of American population and 1% of people classified in other racial categories. It was reported that more than 20 million Americans have symptomatic Osteoarthritis. Men had higher rates of incidence than Women especially after age of 40 years in the US, Osteoarthritis numbers second to ischemic heart diseases as a cause of work disability in men over the age of 50 years in UK, it affects approximately 2.5% of the populations in India primary Osteoarthritis was more common than 2^{o} Osteoarthritis.

A current study claims that osteoarthritis is so common that it beats many other diseases in India such as diabetes. The life time risk of developing knee osteoarthritis has been estimated at 46%. The prevalence and incidence to osteoarthritis considerably increase with age. Osteoarthritis is often progressive despite treatments such as: pain medication, exercises, hot application, cold application, corticosteroid injection before eventually requiring joint replacement. The use of topical substances for the relief of symptoms in osteoarthritis has been addressed in few studies. Gemmel et.al., reported use of herbal creams for improvement of pain and stiffness.

Field et.al, reported on effectiveness of massage to reduce pain in osteoarthritis, Vanhaslen et al reported massage oil reduces pain in osteoarthritis pain.

Pain particularly experienced by orthopaedic patients is one of the most common clinical symptoms encountered by health professionals especially by nurses. The nurse is most effective in providing comfort by understanding the nature of pain and client's perception and working closely with the clients to find out the best relief measures.

During the investigator's clinical practice in the field of nursing, the investigator found that many clients attending orthopedic outpatients department clients undergoing total knee replacement had various degrees of osteoarthritis with severe pain and limitations in mobility.

STATEMENT OF THE PROBLEM

A study to assess the effectiveness of Olive Oil application versus hot application in reduction of knee related symptoms among patients with osteoarthritis in selected rural area at Veeraganur.

OBJECTIVES

1. To assess the level of knee related symptoms among patients with osteoarthritis.
2. To assess the effectiveness of olive oil application on reduction of knee related symptoms among patients with osteoarthritis.
3. To assess effectiveness of hot application on reduction of knee related symptoms among patients with osteoarthritis.
4. To compare the effectiveness of olive oil application versus hot application on reduction of knee related symptoms among patients with osteoarthritis.
5. To associate the post-test level of knee related symptoms among patients with osteoarthritis who receive olive oil application with their selected demographic variables.
6. To associate the post-test level of knee related symptoms among patients with osteoarthritis who receive hot application with their selected demographic variables.

RESEARCH HYPOTHESES

H1 : There is a significant reduction in knee related symptoms among patients with osteoarthritis who receive olive oil application.

H2 : There is a significant reduction in knee related symptoms among patients with osteoarthritis who receive hot application

H3 : There is a significant difference between olive oil application and hot application on reduction of knee related symptoms among patients with osteoarthritis.

H4 : There is a significant association between post-test level of knee related Symptoms and selected demographic variables of patients who receive olive oil application.

H5 : There is a significant association between post-test level of knee related Symptoms and selected demographic variables of patients who receive hot application.

OPERATIONAL DEFINITIONS

EFFECTIVENESS

It refers to the changes in the knee related symptoms brought out by the hot application and olive oil application and it is measured by the tool among patients modify knee injury and osteoarthritis out come scale score.

PATIENTS WITH OSTEOARTHRITIS

It refers to the individual who is admitted with an inflammatory joint disorder marked by degeneration of the particular cartilage hypertrophy of bone at the margins and changes in the synovial membrane accompanied by pain and stiffness in the knee joints which will assessed by using modified Knee Injury and osteoarthritis outcome score scale.

OLIVE OIL APPLICATION

Olive oil application is the application of 10ml olive oil for 10 minutes twice a day for 20 days on affected joint of patients knee related symptoms with osteoarthritis.

HOT APPLICATION

It refers to the application of heat over the knee joint surface with hot water bag at temperature of 140 degree Fahrenheit for 10 minutes for 2 times a day for 20 days.

KNEE RELATED SYMPTOMS

Symptoms perceived and expressed by the patients in terms of pain, swelling, stiffness, congestion as a result of deterioration of the involved knee joint which will be measured by modified knee injury and osteoarthritis outcome scale.

ASSUMPTIONS

- patients with osteoarthritis will have pain in the joints.
- Hot application relives pain, inflammation and increase blood flow.
- Olive oil application improves the tone of supportive muscles enhances join flexibility and relives pain.
- Olive oil application relives pain, swelling and stiffness better than the hot application.

DELIMITATIONS

- The study is limited for 60 samples only.
- The study is limited for 4 weeks duration.
- patients who are not willing to participate.
- This study is limited to rural setting only.

PROJECTED OUTCOME

The findings of the study will reveal the effectiveness of using Olive oil / hot Application on reduction of knee related symptoms in patients with knee osteoarthritis. If found to be effective this intervention could be incorporated as one of the nursing measures to reduce knee related symptoms among patients with knee osteoarthritis.

CHAPTER – II
REVIEW OF LITERATURE

Review of literature is the crucial element of research process related to aim review the critical of knowledge including substance finding as well as theoretical and methodological contribution on particular topic.

This chapter consists of review of literature fewer than four headings.

1. Section – A: A studies related to over view and risk factors of Osteoarthritis.
2. Section – B: Studies related to pain and mobility states in Osteoarthritis.
3. Section – C: Studies related to effectiveness of hot application for Osteoarthritis.
4. Section – D: Review related to olive oil application for Osteoarthritis.

Section – A: A studies related to over view & risk factors of Osteoarthritis

Richmond et al (2013) conducted a study to identify risk factors for arthritis. The study selected to meet the following criteria overweight / obesity. Occupational activity investigated as risk factors, outcomes included osteoarthritis and analytic component of study design. The result showed that joint injury, obesity and occupational activity are associated with an increased risk of knee and hip osteoarthritis.

Snijders et al., (2011) conducted a cohort study to measure the level of difference dimension of fatigue before and after therapy and investigate the association between fatigue, pain and physical mobility in patients with knee osteoarthritis.

Zifchockr et al., (2011) conducted a study to assess the severity of knee osteoarthritis by examining relationship between joint structures, function, and pain. Osteoarthritis was assessed by using visual analogue scale. The study concluded that it may be critical in achieving effective pain relief in patients with osteoarthritis.

M. Blagojevic et al., (2010) conducted a study to determine the risk factors for onset of knee osteoarthritis and its prevention. A systematic literature search was carried out for cohort and case-control studies evaluating the association of demographics, co morbid, and other patients determined factors with onset of knee osteoarthritis. The study concluded that certain factors have been extensively reviewed more longitudinal studies are needed to investigate the association of occupational and other patients-determined factors with future knee osteoarthritis.

Krajnc Z et al., (2010) conducted a study to evaluate differences in knee injuries and osteoarthritis between the dominant and non-dominant legs of former football players. Bilateral standing knee radiographs were taken. The evidence of osteoarthritis was found in 17 (43%) dominant and 23 (58%) non-dominant knees. Football players have a significant risk of knee osteoarthritis with preponderance in the non-dominant leg.

Alouch et al., (2009) conducted a meta analysis and published regarding work related risk factors for osteoarthritis. The review finding stated that there strong relationship between physical strain experienced while performing jobs and the incidence of osteoarthritis. The study reported that main factor associated knee osteoarthritis were obesity previous knee trauma, female gender and old age.

Guh et al., (2009) conducted a study to estimate the incidence of each co-morbidity related to obesity and overweight using a meta-analysis. The result showed that both overweight and obesity were associated with the incidence of multiple co-morbidities including osteoarthritis, type II diabetes, cancer and cardiovascular diseases.

Kalichman (2009) reviewed that prevalence of osteoarthritis more frequently in patients over fifty years of age, osteoarthritis has a strong genetic predisposing; apparently gender and heavy labor has been linked to osteoarthritis. Other values such as weight, smoking, joint hyper elasticity, age of menarche play role.

Section – B: Studies related to pain and mobility states in Osteoarthritis

Maggle Sullivan et al., (2013) conducted a descriptive study from 1192 Africans and Caucasians to evaluate pain severity and mobility limitations in osteoarthritis knee patients. Multiple logistic regression analysis showed that 43% reported difficulty in performing one task. Mild radiographic knee osteoarthritis was associated with difficulty in mobility like climbing, taking a tub bath, getting in and out of car. Moderate pain was associated with difficulty in performing 17 out of 20 tasks, except lifting a cup, opening car door, and turning faucets . Knee pain severity was the strongest risk factor for self reported difficulty in performing upper and lower extremity tasks.

Tveit M et al., (2012) conducted an experimental study to assess the physical function of older clients with clinical knee osteoarthritis. 106 sedentary subjects more than 60 years (mean 69.4, standard deviation 5.9) with knee osteoarthritis (mean 12.2, standard deviation 11.0) were participated in the study. Mobility, joint flexibility and muscle strength were evaluated by recording time to ascend 8 of descend 4 stairs case, rise from sitting or sit down from chair (5 times). Using spearman correlation with walking, stairs climbing, chair rise were significantly correlated with each other and with the pain rating scale index ($p<0.001$).

Orita.S.Koshi et al., (2011) conducted a Comparative study at New York to investigate the movement and muscle activation strategies during walking of individuals with medial knee osteoarthritis. 28 cases and 26 controls were participated.

Knee instability was assessed with activities of daily living scale and knee motion was assessed by motion analysis. Independent's test and regression analysis revealed that osteoarthritis group used less knee motion and higher Muscle contraction during weight acceptance which was found to be detrimental to joint integrity.

Section – C: Studies related to effectiveness of hot application for Osteoarthritis.

Shunsukeochiai, et al. (2014) determined the effectiveness of thermotherapy using a heat and steam generating sheet among patients with knee osteoarthritis in Japan. 22 females aged 50-69 were randomly assigned to either a local heat treatment (LH) group or an exercise therapy group (ET). The samples were subjected to a 12 week intervention experiment. For clinical evaluation, the Japanese knee osteoarthritis measure (JKOM) was performed. There is significant decrease in JKOM score in LH group than ET group. Results showed that thermotherapy was effective when using a steam generating sheet.

Yildirim, et al. (2010) studied the effect of superficial local heat application on pain, stiffness, physical function and quality of life in patients with knee osteoarthritis. 46 patients with knee osteoarthritis were divided into two groups as intervention and control groups. Statistically significant differences were found between the control and intervention group patients in terms of changes in the scores for physical function, pain, and general health perception ($p<0.05$). The results showed that heat application reduce pain and increase the physical function in patients with knee osteoarthritis.

Wafaal. Shereif et al (2011), conducted the study analyzed the uses of therapeutic exercise and heat application on improvement of physical function among patients with knee osteoarthritis. 90 osteoarthritis patients are randomly selected and divided into three groups. Group 1 received training to use heat application with pharmacological treatment group 2 received training of physical exercise with pharmacological treatment group 3 received a combination training of physical exercise and heat application with pharmacological treatment result. Showed that the use of a combination of therapeutic and heat application together was effective.

Jorden JM et.al: (2007) An experimental study conducted to reveal the efficacy of heated mud pack treatment f54in patients with knee osteoarthritis and to find the contribution of chemical factors to the buildup of these effects. 60 clients were randomly allocated into 2 groups. The intervention and followed up for 24 weeks at 4 weeks intervals. A significant number of patients in the study group showed minimal clinically important improvement as compared to the control group. The result showed heat mud pack treatment significantly improved the pain and functional status of patients with knee osteoarthritis.

Felson Dt. Et.al: (2006) A prospective randomized study conducted to evaluated the effectiveness of the dry heat sheet. 37 patients using the heat steam generation sheet and 17 using the dry heat generating sheets, who used the sheets continuously for 4 weeks, were studied. The pain rating scale score was used. The result showed significant improvement of the total pain rating scores with heat generating steam group, but no significant change was observed in the dry heat generating sheet group.

Section – D: Review related to olive oil application for Osteoarthritis.

AlMalty Abdul-Majeed et al., (2013) conducted a study to compare the effect of topical application of olive oil and non-steroidal anti-inflammatory drugs on the knee pain among patients with osteoarthritis. A convenient sample of thirty patients with knee osteoarthritis was randomly assigned to three groups. Group A received topical olive oil (3ml) and group B received topical ketoprofen gel (3cm2) three times a day followed by therapeutic exercise with knee osteoarthritis compared to topical application of NSAID and therapeutic exercise.

Gerald Quigley (2013) conducted a study compared the effectiveness of externally applied olive oil in osteoarthritis, to the commonly available gel containing Piroxicam. The study included patients aged between 40 and 85 years with osteoarthritis of the knee. The study stated that the drug based gel, which has been available in Australia, was not as effective as applying olive oil to the osteoarthritis knees. There’s a number of anti-inflammatory substances contained in olive oil, and the benefits can’t be attributed to just a single ingredient.

Bohloolis (2012) conducted a study in the rheumatology clinic of Imam Hospital, Ardabil University of Medical Sciences, Iran. A traditional method of managing knee pain in Iran, the authors conducted a pilot, prospective, comparative, randomized, double-blinded trail of topical olive oil therapy versus the NSAID piroxicam gel in the treatment of knee osteoarthritis. The findings of this study suggest that treatment for knee osteoarthritis with topical olive oil is associated with greater improvement in all outcome measures compared to treatment with piroxicam gel.

Zohreh Aholhassanzadeh ztal. (2014) OA effects about 50% of people aged older than 65 years. Pain is the most important symptom in these aces. Today public interest in the age of complementary medicine, especially, traditionally herbal medicines have increased. The present study was designed to investigate the efficacy of traditional preparation of peganum harmala L oil on patients with knee OA. The product has been analyzed and standardized by high performance liquid chromatography. A double blind controlled randomized clinical trial consisting of 54 patients were performed. Patients rubbed the drug or apply olive oil on the knee 4 drops 3 times a day for 4 weeks.

Saja H Hamed Et al (2013) Apart from topical application, the efficacy of olive extract supplement has also been studied. The effect of oral olive extract supplement in patients with OA. Aged (55-75) years was 1st tested in a randomized double blinded place 60-controlled trail. The treatment group (n=30) took 400mg of freeze dried olive water extract orally for eight weeks. OA patients in the treatment arm showed significant improvements.

PART - II

CONCEPTUAL FRAMEWORK

The conceptual framework of the study was derived from the modified Wiedenbach's helping art of clinical nursing theory [1964].

According to the theory, the nursing is involved in three components.

- ❖ Identifying need for help
- ❖ Ministering the need for help
- ❖ Validating that need for help was met

In this study, the nurse investigator attaining the goal through 3 steps of wieden bach's perspective theory.

STEP – I

IDENTIFYING NEED FOR HELP GENERAL INFORMATION

For collecting general information the investigator collect information through demographic variables such as age, sex, type of physical activity, body mass index, duration of knee osteoarthritis, treatment and pre-test collect information about knee related symptoms as mild, moderate, severe and extreme.

THECENTRAL PURPOSE

According to the theory the central purpose refers to what the nurse wants to accomplish. It is the overall plan towards nurse strives. In this study the central purpose was the reduction of knee related symptoms.

THE PRESCRIPTION

According to the theory the prescription refers to the plan of care for patients .It specifies the nature of action that will fulfill the nurse's central purpose and the rationale for that action. After the prescription of established plan, the nurse can implement it through the nursing care plan.

STEP – II

MINISTERING THE NEED FOR HELP

The nurse formulates a plan for meeting the patients need for help based on available resources. The nurse presents the plan to the patients and the patient's response to it.

REALITIES

It refers to the physical, physiological, emotional and spiritual factors that come into play in a situation involving nursing action. Wiedenbach's defines the 5 -realities as agent, recipient, goal, mean and framework.

The agent is the nurse who provides nursing care. In this study it refers to the researcher; direct all action toward the goal.

The recipient is the patients who has problems, capabilities and abilities to cope with the concerns or problems being experienced. In this study recipients are patients with knee osteoarthritis.

The goal is the nurses desired outcome. In this study it refers to reduction of knee related symptoms.

The mean comprise the activities and devices used by the nurse to achive the goal. In this study using olive oil application and hot water application two times per day for ten days according to the knee related symptoms.

The frame work consists of the human, environment, professional and organizational facilities. In this study knee osteoarthritis patients were selected at Veeraganur area at PHC.

STEP – III

VALIDATING THAT NEED FOR HELP WAS MET

The nurse perceives the patients behavior consistent or inconsistent with the nurse concept of comfort of capability.

It refers to a collection of evidence that shows patients need have been met and that his/her functional ability has been restored as a direct result of the research action. This step involves post-test assessment and interpreting the scores obtained to infer the outcome.

In this study the post test was done through knee Injury and osteoarthritis outcome scale..

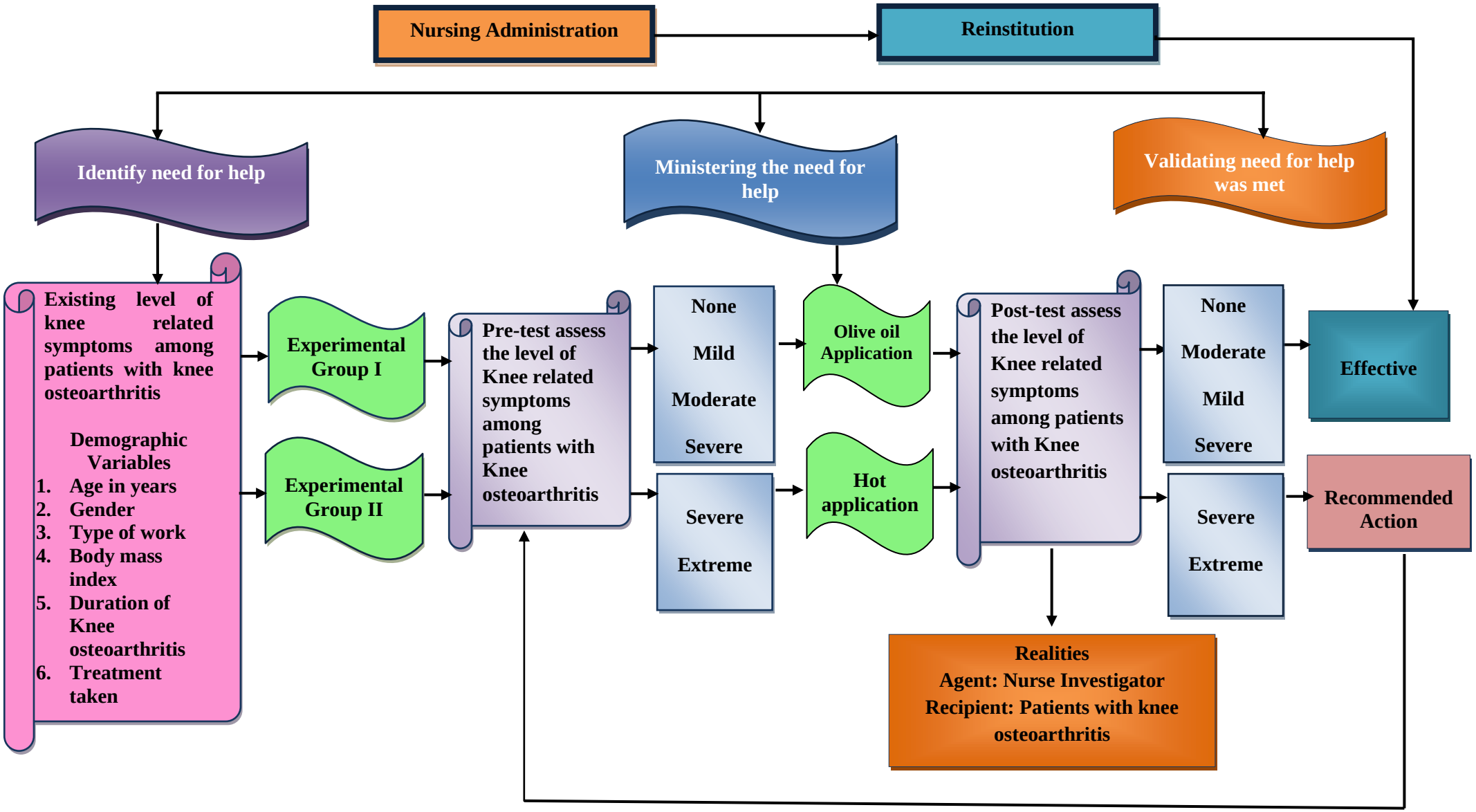

FIGURE 1: WIEDENBACH'S HELPING ART CLINICAL NURSING THEORY (1964)

CHAPTER – III
RESEARCH METHODOLOGY

This chapter describes the methodology followed to compare the effectiveness of olive oil application versus hot application on reduction of knee related symptoms in patients with osteoarthritis.

RESEARCH APPROACH

Evaluative and comparative approach.

RESEARCH DESIGN

True experimental pre-test post-test design.

Group	Pre Test	Intervention	Post Test
Experimental Group I	O1	X1	O2
Experimental Group II	O1	X2	O2

E1 = Experimental group I which was receiving Olive Oil application

E2 = Experimental group II which was receiving hot application

O1 = Pre test measurement of knee related symptoms

O2 = Post test measurement of knee related symptoms

X1 = Olive oil application

X2 = Hot application

VARIABLES

Independent variables:

Olive Oil application / Hot application

Dependent variable:

Knee related symptoms.

SETTINGS

The study was conducted rural area at Veeraganur's.

POPULATION

patients knee related symptoms with osteoarthritis.

TARGET POPULATION:

patients with osteoarthritis having knee related symptoms.

ACCESSIBLE POPULATION:

patients with osteoarthritis having knee related symptoms who are residing in Veeraganur village.

SAMPLE:

patients with knee osteoarthritis who met the inclusion criteria.

SAMPLE SIZE

The sample size was 60.

30 samples in experimental group I and 30 samples in experimental group II.

SAMPLING TECHNIQUE

Simple random sampling technique and lottery method.

CRITERIA FOR SAMPLE SELECTION

Inclusion Criteria:

- ❖ patients with osteoarthritis who have knee related symptoms.
- ❖ patients with osteoarthritis pain.
- ❖ Patients who are willing to participate.
- ❖ patients who reside in Veeraganur.

Exclusion Criteria:

- ❖ patients who were not willing to participate.
- ❖ patients who are having other type of arthritis, traumatic injury to knee.

DESCRIPTION OF THE TOOLS

Section A: Questionnaire to elicit of demographic variables

It consists of demographical variables like age, gender, type of work, body mass index , duration of knee osteoarthritis and treatment taken.

Section B: Modified knee injury and osteoarthritis outcome score scale

Knee injury and osteoarthritis outcome score scale was used to assess the level of knee related symptoms. It consists of 15 statements each with 5 responses. Answer categories are mild, moderate, severe and extreme in each statement. Total score is 60.

Grading Procedure

Level of knee related symptoms	Score
Mild	0 - 15
Moderate	16 - 30
Severe	31 - 45
Extreme	46 - 60

Content validity

For the content of validity the research tool was submitted to experts and requested to give their opinion about the content areas and the relevance denoting and appropriateness of their items.

DATA COLLECTION PROCEDURE

Data collection was done from 03.03.2018 to 03.04.2018 in Veeraganur rural area at Salem. The objectives of the study were explained to the village administrative officer and permission obtained. The samples were selected at residents of Veeraganur rural area by using simple random sampling technique. The purpose of the study was explained and written consent was obtained from all the patients before the study.

On the day I the demographic variables were collected and pre-test was done. The study intervention olive oil application to experimental group I and hot application was given to the experimental group II for twice a day for 20 days. On the end of the 20 day post-test assessment of knee related symptoms in both groups was done by using modified knee injury and osteoarthritis outcome score scale.

PLAN FOR DATA ANALYSIS

It was planned to use descriptive and inferential statistics.

DESCRIPTIVE STATISTICS

The frequency and percentage will be used to analyse the demographic variables and level of knee related symptoms.

Mean and standard deviation will be used to assess the pre-test and post test scores.

INFERENTIAL STATISTICS

Paired ‘t’ test

To compare the scores of pre-test and post-test of patients in the same groups.

Independent ‘t’ test

To compare the scores of post-test effectiveness of experimental group I and experimental group II.

Chi-square test

The test will be used to find out the association fo post test level of knee related symptoms with their selected demographic variables.

ETHICAL CONSIDERATIONS

The study was conducted after the approval of ethical committee of the Thanthai Roever College of Nursing. Permission was sought from the village president of Veeraganur at PHC. Informed consent obtained from each participants and confidentiality maintained. Study purpose and intervention were explained to each participants.

PILOT STUDY

In order to test the feasibility, relevance and practicability of the study, pilot study was conducted from 07.12.2017 to 17.12.2017 among five samples with permission of the village officer. Five samples were taken in experimental group I and 5 in experimental group II and intervention and data collection done in the same manner as that of the original study. The samples included in the pilot study were excluded in main study. As the pilot study was feasible it was decided to preceed the main study without any modification.

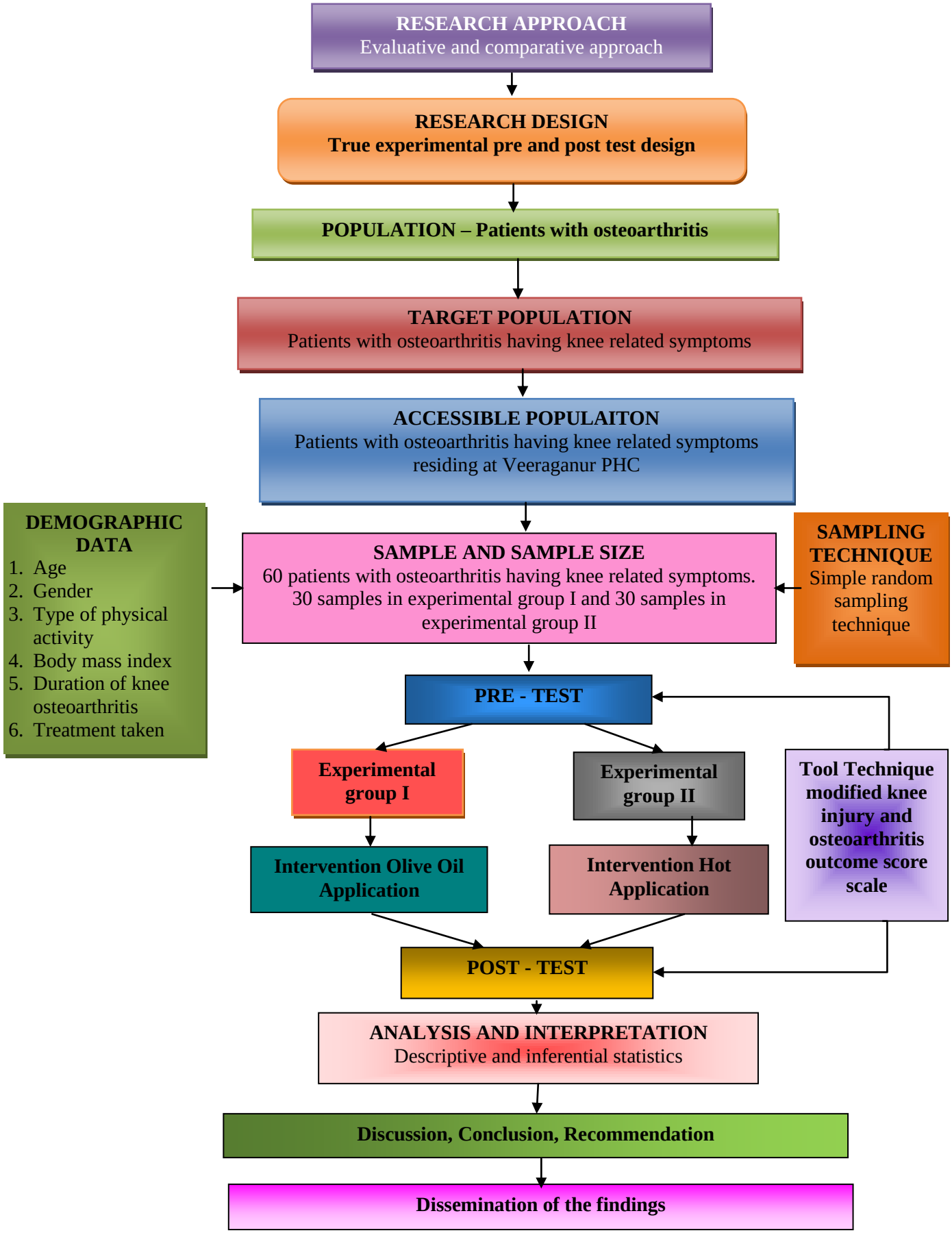

FIGURE.2 - SCHEMATIC REPRESENTATION OF RESEARCH METHODOLOGY

CHAPTER - IV
DATA ANALYSIS AND INTERPRETATION

This chapter deals with the analysis and interpretation of data collected from 60 patients with knee osteoarthritis pain, to assess the effectiveness of olive oil application versus hot application on knee related symptoms among patients with knee osteoarthritis. The data collected were grouped and analysed as per the objectives set for the study. The findings based on the descriptive and inferential statistical analysis are presented under the following sections.

Organization of data:-

The findings of the study were grouped and analyzed under the following sessions.

Section – A : **Description of the demographic variables of patients with knee osteoarthritis.**

Section – B : **Pretest and post test level of knee related symptoms among patients with knee osteoarthritis.**

Section – C : **Effectiveness of olive oil application versus hot applications on knee related symptoms among patients with knee osteoarthritis in the experimental group I and experimental group II**

Section – D : **Association of post test level of knee related symptoms with their selected demographic variables in the experimental group I and experimental group II.**

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SECTION – A

Table: 1- Frequency and percentage distribution of demographic variables of the patients with knee osteoarthritis in experimental group I an experimental group II. N=60

Demographic Variables	Experimental Group I		Experimental Group II	
	No	%	No	%
Age in years				
41 – 50	8	26.66	8	26.6
51 – 60	10	33.33	10	33.3
61 – 70	8	26.6	9	30
71 – 80	4	13.33	3	10
Gender				
Male	13	43.33	9	30
Female	17	56.66	21	70
Type of Physical Activity				
Sedentary work	2	6.66	1	3.33
Moderate work	12	40	12	40
Heavy work	16	53.33	17	56.66
Body mass index				
Under weight	4	13.33	3	10
Normal weight	19	63.33	18	60
Over weight	7	23.33	9	30
Duration of knee OA in years				
<1	8	26.66	10	33.33
1 – 3	10	33.33	8	26.66
4 – 6	5	16.6	7	23.33
>6	7	23.33	5	16.66
Treatment for osteoarthritis				
Drugs	15	50	22	73.33
Physiotherapy	0	0.00	5	16.66
Both	13	43.33	0	0.00
No treatment	2	6.66	3	10

Table 1 shows that in the experimental group – I, Majority 10 (33.33%) were age in years, 17(56.66%) were female, 16(53.33%) were heavy work, 19(63.33%) were normal weight, 10(33.33%) had 1-3 years duration of knee osteoarthritis and 15(50%) were treated with drug therapy for osteoarthritis.

Whereas in the experimental group II, majority 10(33.33%) were age in years, 21(70%) were female, 17(56.66%) were heavy work, 18(60%) were normal weight, 10(33.33%) had < 1 years duration of knee osteoarthritis and 22(73.33%) were treated with drug therapy for osteoarthritis.

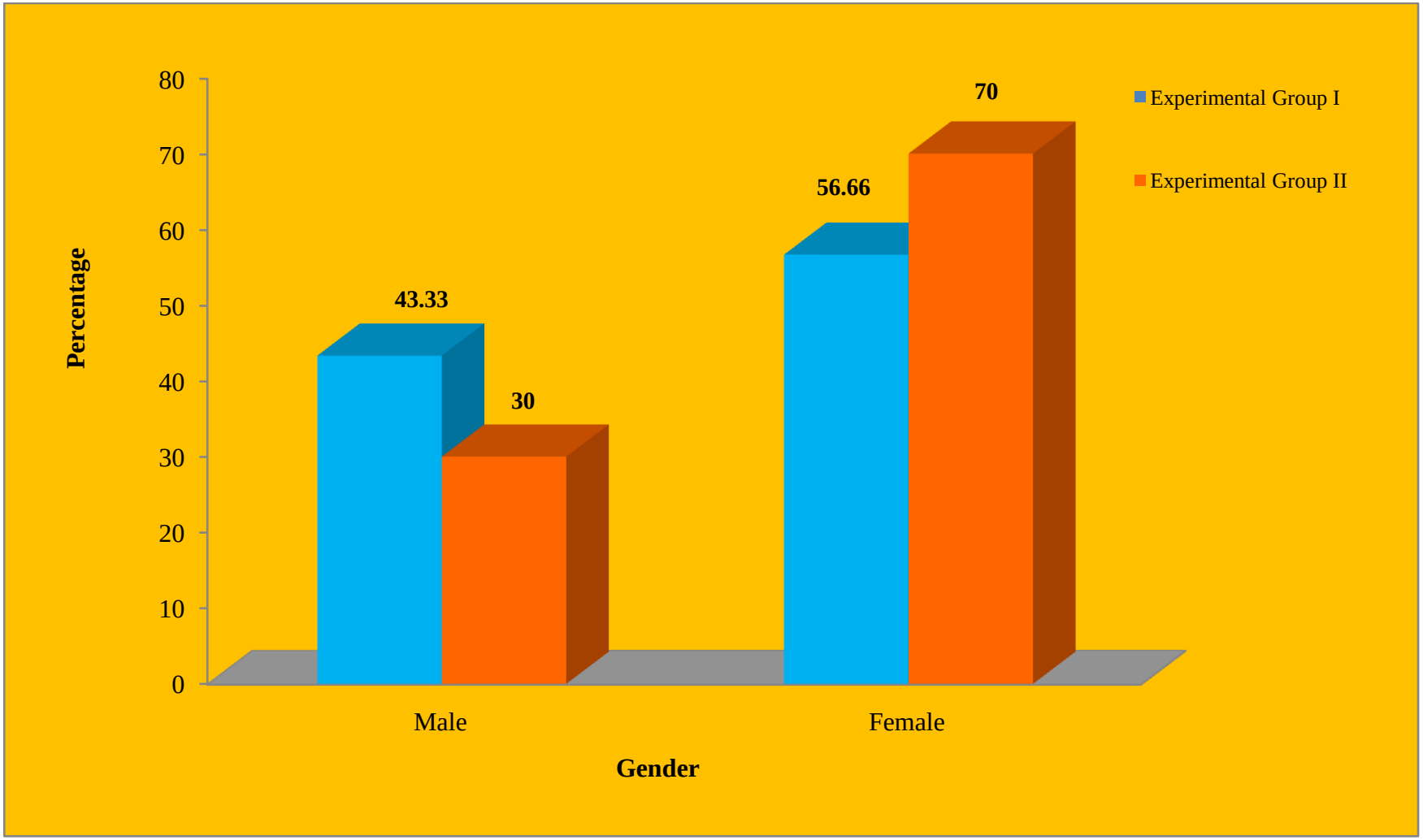

FIGURE 3:- Percentage distribution of gender of patients with knee osteoarthritis

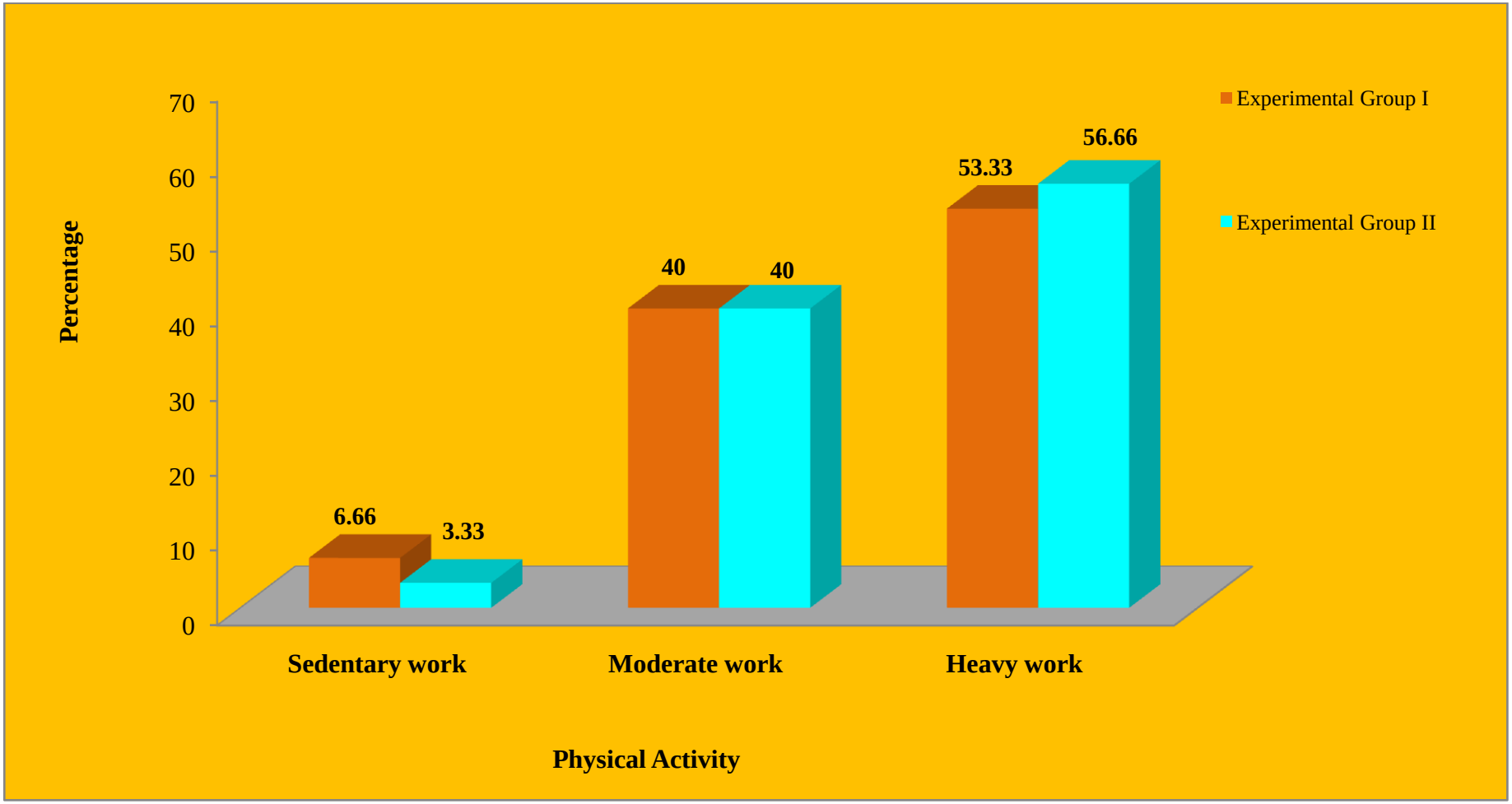

FIGURE 4:- Percentage distribution of physical activity of patients with knee osteoarthritis

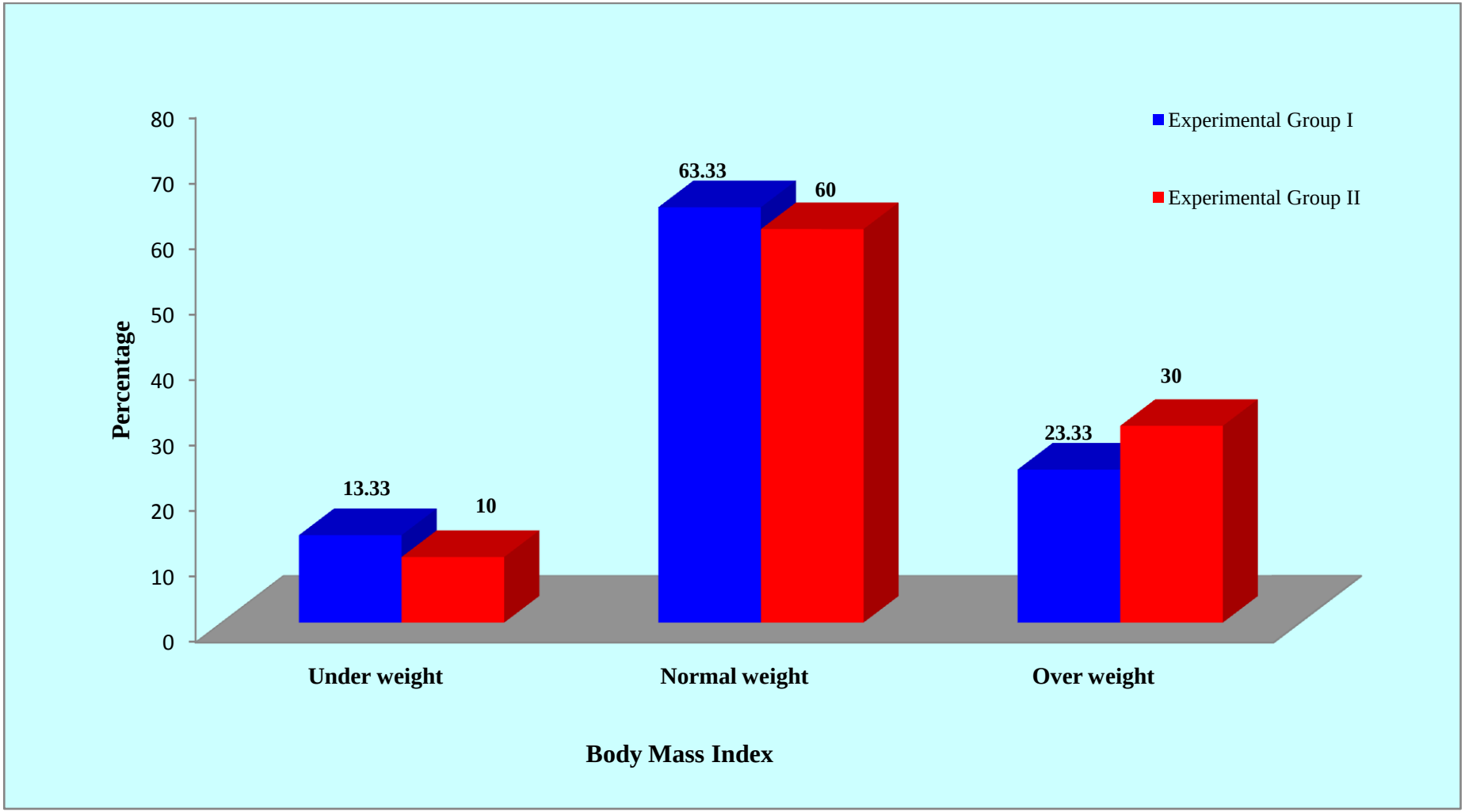

FIGURE 5:- Percentage distribution of body mass index of patients with knee osteoarthritis

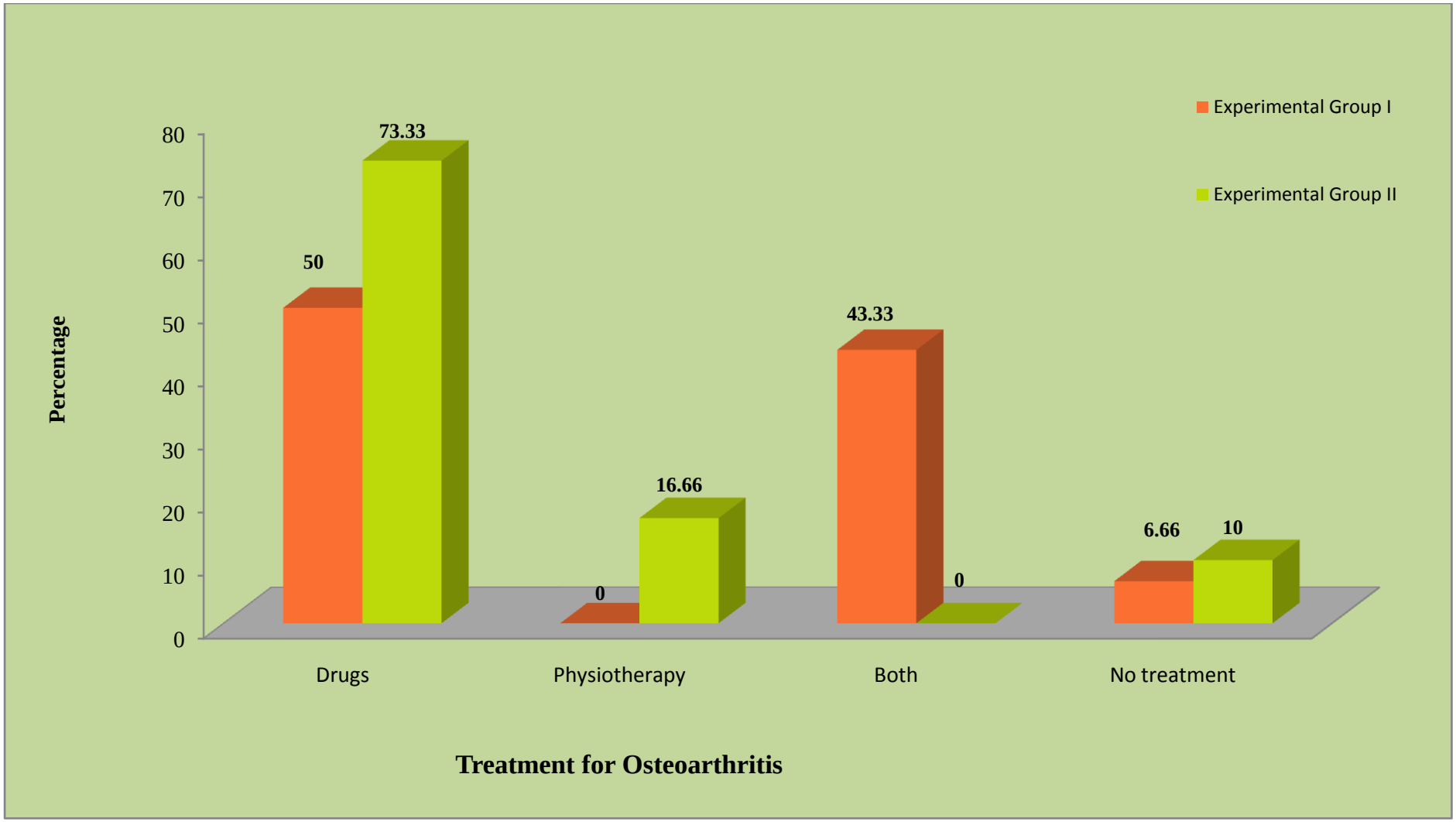

FIGURE 6:- Percentage distribution of treatment of patients with knee osteoarthritis

SECTION – B

Table – 2: Frequency and percentage distribution of pretest and post test level of knee related symptoms among patients with knee osteoarthritis in the experimental group -I. N = 30

Knee related symptoms	None (0)		Mild (1 – 15)		Moderate (16 – 30)		Severe (31 – 45)		Extreme (46 – 60)	
	No	%	No	%	No	%	No	%	No	%
Pre test	0	0	0	0	0	0	17	56.66	13	43.33
Post test	0	0	9	30	21	70	0	0	0	0

Table 2 shows that in the experimental group-I, pre test majority of 17 (56.66 %) had severe level of knee related symptoms and 13 (43.33 %) had extreme level of knee related symptoms in the pre test.

Whereas in the post test, majority 21 (70.00 %) had moderate level of knee related symptoms 9 (30.0 %) of had mild level of knee related symptoms among patients with knee osteoarthritis in the experimental group-I.

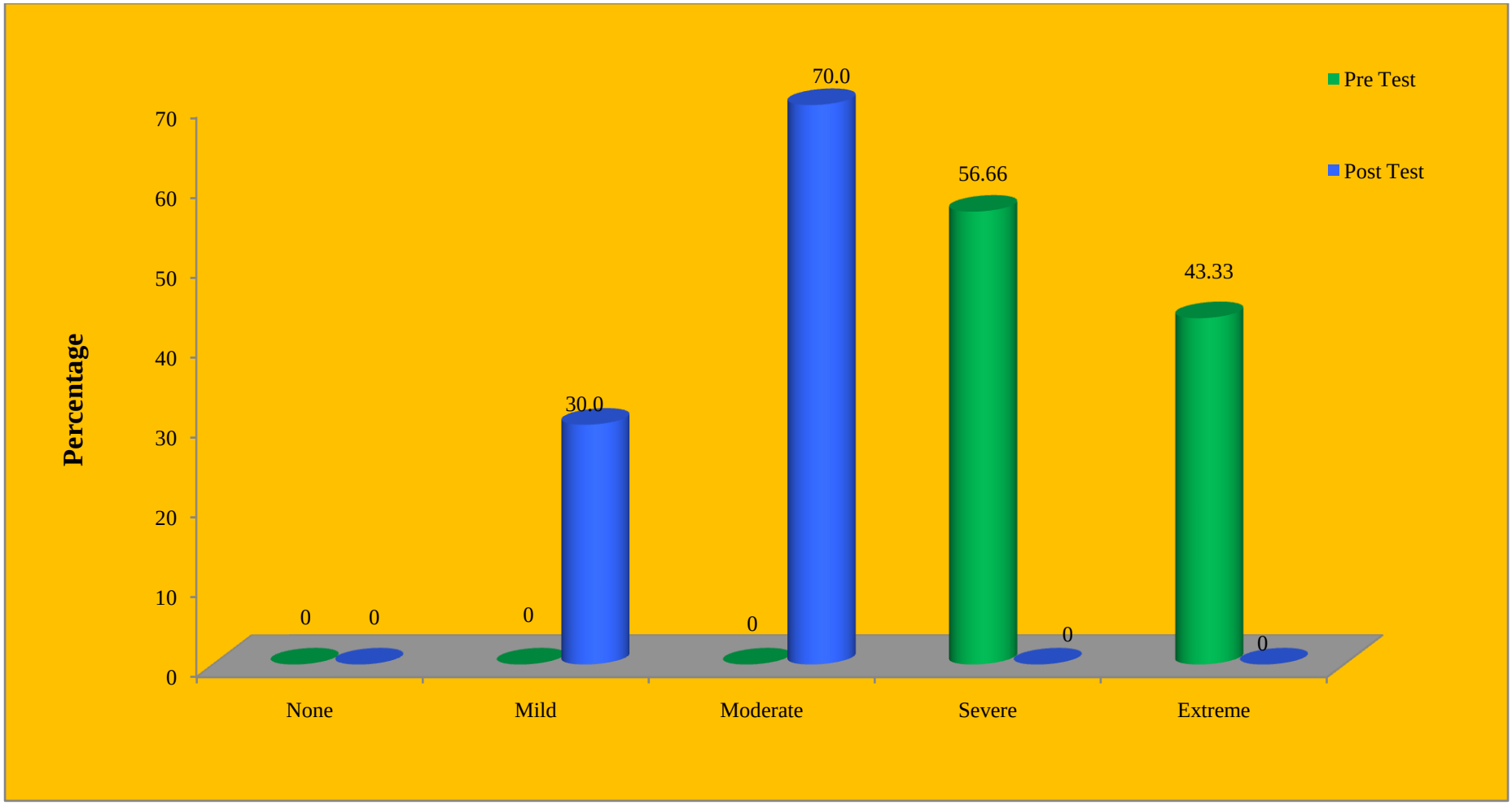

FIGURE 7: Percentage distribution of pre test and post test level of knee related symptoms among patients with knee Osteoarthritis in the experimental Group I

Table – 3: Frequency and percentage distribution of pretest and post test level of knee related symptoms among patients with knee osteoarthritis in the experimental group -II. N = 30

Knee related symptoms	None (0)		Mild (1 – 15)		Moderate (16 – 30)		Severe (31 – 45)		Extreme (46 – 60)	
	No	%	No	%	No	%	No	%	No	%
Pre test	0	0	0	0	0	0	17	56.66	13	43.33
Post test	0	0	2	6.66	27	90	1	3.33	0	0

Table 3 shows that in the experimental group-II, pre test majority of 17 (56.66 %) had severe level of knee related symptoms and 13 (43.33 %) had extreme level of knee related symptoms in the pre test.

Whereas in the post test majority 27 (90.00 %) had moderate level of knee related symptoms and 2 (6.66 %) had mild level of knee related symptoms and 1 (3.33 %) had severe level of knee related symptoms among patients with knee osteoarthritis in the experimental group-II.

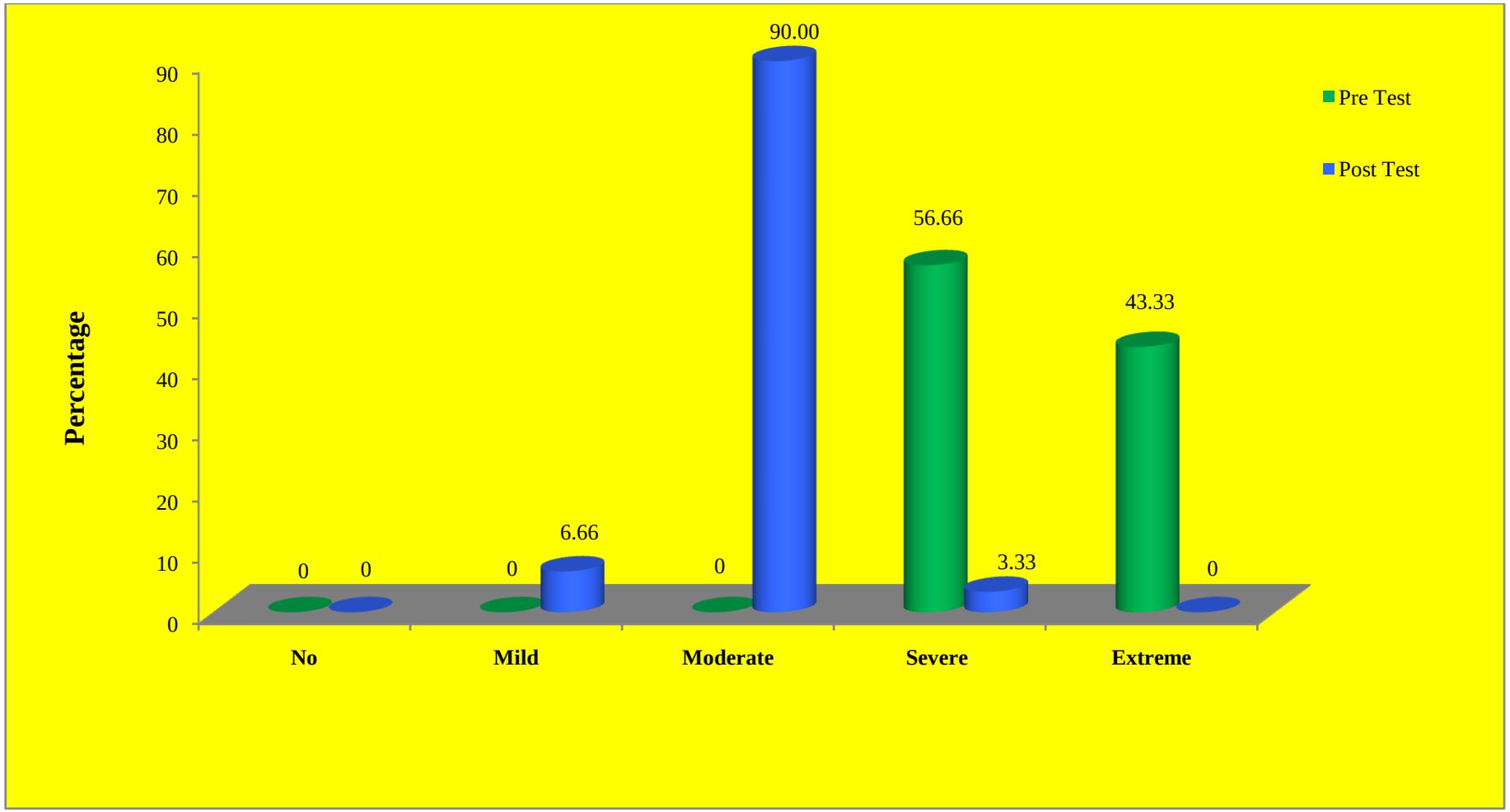

FIGURE 8: Percentage distribution of pre-test and post-test level of knee related symptoms among patients with knee Osteoarthritis in the experimental group II

SECTION – C

Table – 4: Comparison of Pre test and Post test mean score of knee related symptoms among patients with knee osteoarthritis in the experimental group –I

N = 30

Experimental Group - I	Total Score	Mean	SD	Mean Difference	Paired 't'- Value
Pre test	60	44.4	5.34	26.1	t = 20.010 p = 0.000 S***
Post test	60	18.3	4.71		

***P<0.001, S – Significant

Table 4 shows that in the experimental group – I. The pre test mean score of knee related symptoms was 44.4 ± 5.34 and the post test mean score of knee related symptoms was 18.3 ± 4.71. The calculated paired t- value 20.010 was found to be statistically significant at p<0.001 level.

Table – 5: Comparison of Pre-test and Post-test mean score of knee related symptoms among patients with knee osteoarthritis in the experimental group –II.

N = 30

Experimental Group - II	Total Score	Mean	SD	Mean Difference	Paired 't'- Value
Pre test	60	45.26	5.55	21.83	t = 22.358 p = 0.000 S***
Post test	60	23.43	4.75		

***P<0.001, S – Significant

Table 5 shows that in the experimental group – II. The pre test mean score of knee related symptoms was 45.26 ± 5.55 and the post test mean score of knee related symptoms was 23.43 ± 4.75. The calculated paired t- value 22.358 was found to be statistically significant at p<0.001 level.

Table - 6: Comparison of Post-test mean score of knee related symptoms among patients with knee osteoarthritis between the experimental group–I and experimental group –II.

N = 30

Post Test	Total Score	Mean	SD	Mean Difference	Paired 't'- Value
Experimental Group - I	60	18.3	4.71	5.13	t = 4.214 p = 0.000 S***
Experimental Group - II	60	23.43	4.75		

***P<0.001, S – Significant

Table 6 shows that the post-test mean score of knee related symptoms in experimental group - I was 18.3 ± 4.71 and the post test mean score of knee related symptoms in experimental group - II was 23.43 ± 4.75. The calculated un paired t- value 4.214 was found to be statistically significant at p<0.001 level.

SECTION – D

Table 7: Association of post-test level of knee related symptoms among patients with knee osteoarthritis with their selected demographic variables in the experimental group I. N = 30

Demographic Variables	Mild		Moderate		Chi square Value
	No	%	No	%	
Age in years					
41 – 50	1	3.3	7	23.33	x^2= 5.0001 S***
51 – 60	1	3.3	7	2.33	
61 – 70	3	10	3	10	
71 – 80	4	13.3	4	13.3	
Gender					
Male	5	16.6	18	60	x^2= 3.2031 NS
Female	4	13.3	3	10	
Type of Physical Activity					
Sedentary work	3	10	8	26.6	x^2= 0.5310 NS
Moderate work	3	10	7	23.3	
Heavy work	3	10	6	20.0	
Body mass index					
Under weight	3	10	8	26.6	x^2= 0.8831 NS
Normal weight	4	13.3	6	20.0	
Over weight	2	6.66	7	23.3	
Duration of knee OA in years					
<1	1	3.3	7	28.33	x^2= 2.0228 NS
1 – 3	5	16.3	10	33.3	
4 – 6	1	3.3	2	6.66	
>6	2	6.66	2	6.66	
Treatment for osteoarthritis					
Drugs	5	16.66	10	33.3	x^2= 3.0159 NS
Physiotherapy	0	0	0	0	
Both	2	6.66	10	33.3	
No treatment	2	6.66	1	3.33	

*p<0.05, S – Significant, NS – Not Significant

Table 7 shows that in the demographic variables Age in years had shown statistically significant association with post test of knee related symptoms among patients in the experimental group – I at $p<0.001$ level and the other demographic variables, had not shown statistically significant association with post test level of knee related symptoms among patients with knee osteoarthritis in the experimental group I.

Table 8: Association of post-test level of knee related symptoms among patients with knee osteoarthritis with their selected demographic variables in the experimental group II. N = 30

Demographic Variables	Mild		Moderate		Severe		Chi square Value
	No	%	No	%	No	%	
Age in years							
41 – 50	0	0	8	26.6	0	0.0	$x^2 = 6.9382$ S^{***}
51 – 60	1	3.3	9	30.3	1	0	
61 – 70	0	0	8	26.6	0	0	
71 – 80	1	3.3	2	6.66	0	0	
Gender							
Male	1	3.3	8	26.6	0	0	$x^2 = 0.8113$ NS
Female	1	3.3	19	63.3	1	3.3	
Type of Physical Activity							
Sedentary work	0	0	1	3.3	0	5	$x^2 = 1.7347$ NS
Moderate work1	1	3.3	10	23.3	1	3.3	
Heavy work	1	3.3	16	53.3	0	3.3	
Body mass index							
Under weight	1	3.3	2	6.66	0	0	$x^2 = 6.7735$ S^{*}
Normal weight	1	3.3	18	60	0	0	
Over weight	0	0	7	23.3	1	3.3	
Duration of knee OA in years							
<1	0	0	9	30.3	1	3.3	$x^2 = 6.9386$ S^{*}
1 – 3	2	6.6	7	23.3	0	0	
4 – 6	0	0	6	20	0	0	
>6	0	0	5	16.6	0	0	
Treatment for osteoarthritis							
Drugs	1	3.3	14	46.6	1	3.3	$x^2 = 7.8143$ S^{*}
Physiotherapy	0	0	0	0	0	0	
Both	0	0	12	40	0	0	
No treatment	1	3.3	1	3.3	0	0	

*P < 0.05, S – Significant, NS – Not Significant

Table 8 shows that in the demographic variables age in years, Body mass index, duration of knee osteoarthritis in years, treatment for osteoarthritis had shown statistically significant association with post test level of knee related symptoms among patients in the experimental group II at $p<0.01$ level and the other demographic variables Gender, type of physical activity had not shown statistically significant association with post test level of knee related symptoms among patients with knee osteoarthritis in the experimental group II.

CHAPTER – V
DISCUSSION

This chapter highlights the discussion of the data analyzed based on the objectives of the study. The problem stated is "**A study to compare the effectiveness of olive oil application versus hot application on knee related symptoms among patients with knee osteoarthritis in selected rural area at Veeraganur".**

1. **The first objectives of the study was to assess the level of knee related symptoms among patients with knee osteoarthritis.**

   In experimental group I, the pretest level of knee related symptoms revealed that majority 56.66% had severe level of knee related symptoms and in the post test majority 70% had moderate level of knee related symptoms and 30% of had mild level of knee related symptoms.

   In experimental group II, the pre test level of knee related symptoms revealed that majority 56.66% had severe level and 43% had extreme level of knee related symptoms in the post test majority 90% had moderate level and 6% had mild level of knee related symptoms and 3% had severe level of knee related symptoms.

2. **The second objective of the study was to assess the effectiveness of olive oil application on reduction of knee related symptoms among patients with knee osteoarthritis.**

   The calculated pre test mean score of knee related symptoms was 44.4±5.34 and the post test knee related symptoms mean score was 18.3 ± 4.71 calculated 't' value 20.010 was significant at $p < 0.001$.

   Based on the findings the stated hypothesis H1: There is a significant reduction in knee related symptoms among patients with knee osteoarthritis who receive olive oil application was accepted.

3. **The third objective of the study was to assess the effectiveness of Hot application on reduction of knee related symptoms among patients with knee osteoarthritis.**

The calculated pre test means score of knee related symptoms was 45.26±5.55 and the post test knee related symptoms mean score was 23.43±4.75. calculated 't' value 22.358 was significant at $p<0.001$.

Based on the findings the stated Hypothesis H2: There is a significant reduction in knee related symptoms among patients with knee osteoarthritis who receive hot application was accepted.

4. **The fourth objective of the study was to compare the effectiveness of olive oil application versus hot application on reduction of knee related symptoms among patients with knee osteoarthritis.**

In experimental group I, the post test mean score and standard deviation was 18.3 and 4.71. In experimental group II post test mean score and standard deviation was 23.43 and 4.75. The calculated 't' value was 4.214 indicating that there was a significant difference between post test level of knee related symptoms in experimental group I and experimental group II at $p < 0.001$ level.

Based on the findings the stated Hypothesis H3: there is a significant difference between olive oil application versus hot application on reduction of knee related symptoms among Patients with knee osteoarthritis was accepted.

5. **The fifth objective was to associate the post test level of knee related symptoms among patients who received olive oil application with their selected demographic variables.**

Findings revealed that the demographic variables age in years had shown significant association with the post test level of knee related symptoms and the other demographic variables of gender, type of physical

activity, body mass index, duration of knee osteoarthritis knee osteoarthritis in years, Treatment for osteoarthritis had not shown statistically significant association with the post test level of knee related symptoms.

Based on the findings the stated Hypothesis H4: There is a significant association between post test level of knee related symptoms and selected demographic variables of patients with knee osteoarthritis who receive olive oil application was not accepted.

6. **The sixth objective was to associate the post test level of knee related symptoms among patients who receive hot application with their selected demographic variables.**

Findings revealed that the selected demographic variables age in years, body mass index, duration, treatment for osteoarthritis had shown significant association with the post test level of knee related symptoms and the other demographic variables of gender, type of physical activity had not shown statistically significant association with the post test level of knee related symptoms.

Based on the findings the related Hypothesis H5: There is a significant association between post test level of knee related symptoms and selected demographic variables of patients with knee osteoarthritis who receive hot application was not accepted.

CHAPTER – VI
SUMMARY, MAJORFINDINGS, IMPLICATIONS, RECOMMENDATIONS AND CONCLUSION

This chapter is divided into two sections, in the first section summary of the study findings and conclusion is presented. In the second section implication in variable areas of nursing practice, Nursing Education, Nursing Administration, Nursing Research and Recommendations for further study are presented.

SUMMARY OF THE STUDY

The objective of the study was to compare the effectiveness of olive oil application versus hot application on knee related symptoms among patients with knee osteoarthritis between experimental group I and experimental group II.

Evaluative with comparative approach and true experimental pretest and post test design was adopted for the study. Independent variable in this study was olive oil application and dependent variable was hot application. The conceptual frame work adopted for the present study was modified wiedenbach's helping art clinical nursing theory.

The tool used in this study was modified knee and osteoarthritis outcome scale. The main study was conducted in Veeraganur and to samples were recruited through simple random sampling technique, olive oil application and hot application was given as interventions and pretest and post test were done on day - 1 and day - 10 respectively to both groups. The findings revealed that the experimental group I post test mean score of knee related symptoms. 18.3 was greater than the experimental group II mean score 23.43. The obtained 't' value 22.358 was significant at $p<0.001$ level. Hence it was found that olive oil was effective than hot application in reduction of knee related symptoms. There was no significant association found between the pre test mean score of knee related symptoms of the participates and demographic variables in both the groups.

MAJOR FINDINGS OF THE STUDY

Majority of the participants,

- 33.33% belongs to the age group 51-60 years in both experimental group I, II.
- 56.66% in experimental group I 70% in experimental group II were females.
- 53.33% in experimental group I, 56.66% in experimental group II were doing heavy work.
- 63.33% in experimental group I, 60% in experimental group II were normal weight.
- 33.33% in experimental group I were having knee osteoarthritis for 1-3 years. 33.33% in experimental group II were having knee osteoarthritis for more than 1 years.
- 50% in experimental group I and 73.33% in group II were treated with drug therapy.

FINDINGS RELATED TO STUDY INTERVENTION

- In pretest experimental group I 56.66% had severe level of knee related symptoms 43.33% had severe level of knee related symptoms.
- In experimental group II 56.66% had severe level of knee related symptoms and 43.33% had extreme level of knee related symptoms.
- In post test in experimental group I 70% had moderate level of knee related symptoms, 30% had mild level of knee related symptoms. In group II 90% had moderate level of knee related symptoms 6.66% had mild level of knee related symptoms 3.33% had severe level of knee related symptoms.
- In experimental group I pretest knee related symptom mean score was 44.4 and post test 18.3. The calculated t value 20.010 was significant at $p< 0.001$ level

- In experimental group II pre test knee related symptoms mean score was 45.26 and post test 23.43. The calculated "t" value 22.358 was significant at $p < 0.001$ level.
- The post test knee related symptoms mean score 18.3 in experimental group I less than mean score 23.43 of experimental group II. The calculated 't' value 4.214 was significant at $p<0.001$ level.
- The demographic variables age in years had shows statistically significant association and other demographic variables had not shown statistically significant association with the post test level of knee related symptoms in the experimental group I.
- The demographic variables age in years, BMI, duration of knee related symptoms in osteoarthritis Treatment for osteoarthritis had shown significant association and other demographic variables had not shown significant association with the post test level of knee related symptoms in the experimental group II.

IMPLICATIONS

The following implications, of vital concern in the field of nursing practice, nursing education, nursing administration and nursing research is derived from the study.

IMPLICATIONS FOR NURSING PRACTICE

The nurse has a vital role in providing safe and effective nursing care to enhance the reduction of knee related symptoms with knee osteoarthritis.

IMPLICATIONS FOR NURSING EDUCATIONS

Educate the students about olive oil application for osteoarthritis.

The effectiveness of olive oil application on reduction of knee related symptoms is to be published in the nursing journal to make awareness among the nursing students.

IMPLICATIONS FOR NURSING ADMINISTRATION

Conduct in service education programme and continuing nursing education programme for effective management of knee related symptoms among patients with knee osteoarthritis.

The nurse advisers can make awareness among staff nurses about significance of olive oil application for reducing knee related symptoms among patients with osteoarthritis through workshops and seminars.

IMPLICATIONS FOR NURSING RESEARCH

As a nurse research, promote more research on to compare the therapy effectiveness of using olive oil application versus hot application on knee related symptoms among patients with knee osteoarthritis..

RECOMMENDATIONS

The study recommends the following future research. A similar study can be conducted with larger samples for better generalization.

The nurse researcher can do the research in varies settings with the large samples.

A study can be conducted with the effectiveness of other nursing measures such as mud pack therapy, short wave, exercises, oil massage for reduction of knee related symptoms among patients with knee osteoarthritis..

CONCLUSION

The study compared the effectiveness of olive oil application and hot application on reduction of knee related symptoms among patients with knee osteoarthritis in veeraganur. From the above findings, it was evidenced that olive oil application was effective than hot application on relieving knee related symptoms.

On the whole carrying out the present study was really an enriching experience to the investigator. It are helped a great deal to explore and improve the knowledge of the researcher and the respondents.

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ANNEXURE – I

LETTER SEEKING PERMISSION FOR RESEARCH PURPOSE

From

301611702,
II – Year M.Sc. (Nursing),
Thanthai Roever College of Nursing,
Perambalur.

To

The Village President,
Veeraganur.

Respected Sir / Madam,

Sub: Requisition for granting permission regarding.

I am doing II Year M.Sc., (Nursing) in Thanthai Roever College of Nursing, Perambalur, Under the Tamilnadu **Dr. M.G.R Medical University**, Chennai. As a partial fulfillment of my M.Sc., (Nursing) Degree programme, I am going to conduct a study on, **"A study to assess the effectiveness of Olive Oil application versus hot application in reduction of knee related symptoms among patients with osteoarthritis in selected rural area at Veeraganur"**. I would like to select your place for my data collection. Hence, I kindly request you to give me permission to conduct the study in your place.

Thanking You

Place: Yours Sincerely,
Date: [301611702]

ANNEXURE – II

LETTER SEEKING EXPERTS OPINION FOR CONTENT VALIDITY

From

301611702,
II Year M.Sc., (Nursing),
Medical Surgical Nursing Department,
Thanthai Roever College of Nursing,
Perambalur – 621212.

To

Respected Madam / Sir

Sub: requisition for content validity of tool regarding.

I am doing II year M.Sc., (Nursing) in Thanthai Roever College of Nursing, Perambalur, under the Tamilnadu Dr. M.G.R. Medical University, Chennai. As a partial fulfillment of my M.Sc., (Nursing) Degree programme, I am conducting a research on. **"A study to assess the effectiveness of Olive Oil application versus hot application in reduction of knee related symptoms among patients with osteoarthritis in selected rural area at Veeraganur"**. A tool has bee developed for the research study. I am sending the above stated for your expert and valuable opinion. I will be thankful for your kind consideration. Kindly return it to the undersigned.

Thanking you

Place: Yours Sincerely,
Date: [301611702]

ANNEXURE – III

EVALUATION CRITERIA CHECK LIST FOR VALIDATION

INTRODUCTION

The expert is requested to go through the following criteria for evaluation. Three columns are given for responses and a column for remarks.

Kindly place tick mark in the appropriate column and give remarks.

Interpretation of column:

Column I : Meets the criteria

Column II : Partially meet the criteria

Column III : Does not meet the criteria

S.No	Criteria	1	2	3	Remarks
1.	**Scoring** Adequacy Clarity Simplicity				
2.	**Content** Logical sequence Adequacy Relevance				
3.	**Language** Appropriate Clarity Simplicity				
4.	**Practicability** It is easy to score Does it precisely Utility				

Signature :

Name :

Designation :

Address :

Any other Suggestion

ANNEXURE - IV

LIST OF EXPERT'S OPINION FOR CONTENT VALIDITY OF RESEARCH TOOL

1. Prof.R.Punithavathi M.Sc. (N),
Principal,
Thanthai Roever College of Nursing,
Perambalur.

2. Prof.V.J.Elizabeth M.Sc. (N),
Vice principal,
Thanthai Roever College of Nursing,
Perambalur.

3. Prof.R.Reena M.Sc. (N), Ph.D,
Principal,
Tagore College of Nursing,
Chennai.

4. Prof. R.Umarani M.Sc. (N), M.S, Ph.D,
Principal,
Sri Vijay Vidhalaya College of Nursing,
Dharmapuri.

5. Mrs. V. Manopriya M.Sc. (N), M.B.A,
Assistant professor
Kasturba Gandhi College of Nursing,
Puducherry

6. Mrs. S. Shyamala Grace M.Sc. (N),
Associate professor,
Dhanalakshmi College of Nursing,
Perambalur.

ANNEXURE – V (A)

CERTIFICATE OF ENGLISH EDITING

TO WHOMSOEVER IT MAY CONCERN

This is to certify that Reg. No: **301611702**, II – Year M.Sc., (Nursing) Student of Thanthai Roever College of Nursing has done a dissertation study on **"A study to assess the effectiveness of Olive Oil application versus hot application in reduction of knee related symptoms among patients with osteoarthritis in selected rural area at Veeraganur"**. This study was edited for English language appropriateness.

Signature,

ANNEXURE – V (B)

CERTIFICATE OF TAMIL EDITING

TO WHOMSOEVER IT MAY CONCERN

This is to certify that Reg. No: **301611703**, II – Year M.Sc., (Nursing) Student of Thanthai Roever College of Nursing has done a dissertation study on **"A study to assess the effectiveness of Olive Oil application versus hot application in reduction of knee related symptoms among patients with osteoarthritis in selected rural area at Veeraganur"**. This study was edited for Tamil language appropriateness.

Signature,

ANNEXURE - VI

ஒப்புதல் படிவம்

பெரம்பலூர் தந்தை ரோவர் செவிலியர் கல்லூரியில் முதுகலை செவிலிய பட்டபடிப்பு பயிலும் பதிவு எண்: **301611702** அவர்களால் நடத்தப்படுகின்ற ஆலிவ் எண்ணெயை மற்றும் வெப்ப ஒத்தடம் மூலம் மூட்டு வலி குறைத்தல் சம்பந்தமான ஆராய்ச்சி நோக்கத்தினை பற்றியும், சிகிச்சை பற்றிய விளக்கமும் எனக்கு தெளிவாக தெரிவிக்கப்பட்டது. இதில் ஆலிவ் எண்ணெய் மற்றும் வெப்பம் ஒத்தடம் எனது மூட்டின் மேல் கொடுப்பதற்கு நான் சம்மதிக்கிறேன். இதில் பங்கேற்பதற்கு எனக்கு எந்த ஆட்சேபனையும் இல்லை. மேலும் இந்த விவரங்களை வெளியிடுவதற்கும் அச்சிடுவதற்கும் முழு சம்மதம் அளிக்கிறேன்.

கையெழுத்து:

பெயர்:

தேதி:

இடம்:

ANNEXURE – VII (A)

DATA COLLECTION TOOL

SECTION – A DEMOGRAPHIC DATA TOOL

1] AGE IN YEARS

a] 41 – 50 ☐

b] 51 – 60 ☐

c] 61 – 70 ☐

d] 71 – 80 ☐

2] GENDER

a] Male ☐

b] Female ☐

3] TYPES OF WORK

a] Sedentary work ☐

b] Moderate work ☐

c] Heavy work ☐

4] BODY MASS INDEX

a] Under weight ☐

b] Normal weight ☐

c] Over weight ☐

5] DURATION OF KNEE OA IN YEARS

a] <1 ☐

b] 1 – 3 ☐

c] 4 - 5 ☐

d] >5 ☐

6] TREATMENT FOR OSTEOARTHRITIS

a] Drugs ☐

b] Physiotherapy ☐

c] Both ☐

d] No Treatment ☐

SECTION – B

MODIFIED KNEE INJURY AND OSTEOARTHRITIS OUTCOME SCORE

Kindly tick (√) the appropriate answer

SYMPTOMS	Score 0	Score 1	Score 2	Score 3	Score 4
How severe is your knee stiffness after first wakening in the morning?	None	Mild	Moderate	Severe	Extreme
How Severe is your knee stiffness after sitting, lying, or resting later in the day?	None	Mild	Moderate	Severe	Extreme
Do you have swelling in your knee?	None	Rarely	Sometimes	Often	Always
Do you feel grinding, hear clicking or any other type of noise when your knee moves?	None	Rarely	Sometimes	Often	Always
Does your knee catch or hand up when moving?	None	Rarely	Sometimes	Often	Always
Can you straighten your knee fully?	Always	Often	Sometimes	Rarely	Never
Can you bend your knee fully?	Always	Often	Sometimes	Rarely	Never

What degree of pain have your experienced the last week when…?					
PAIN	**Score 0**	**Score 1**	**Score 2**	**Score 3**	**Score 4**
Twisting / pivoting on you knee	None	Mild	Moderate	Severe	Extreme
Straightening knee fully	None	Mild	Moderate	Severe	Extreme
Bending knee fully	None	Mild	Moderate	Severe	Extreme
Walking on flat surface	None	Mild	Moderate	Severe	Extreme
Going up or down stairs	None	Mild	Moderate	Severe	Extreme
At night while in bed	None	Mild	Moderate	Severe	Extreme
Sitting or lying	None	Mild	Moderate	Severe	Extreme
Standing upright	None	Mild	Moderate	Severe	Extreme

Total Score:

0-15 - Mild level of knee related symptoms

16-30 - Moderate level of knee related symptoms

31-45 - Severe level of knee related symptoms

46-60 - Extreme level of knee related symptoms

ANNEXURE – VII (B)
தகவல் சேகரிப்பு படிவம்
பகுதி – அ

1] வயது (வருடங்களில்)

அ. 41 – 50 ☐

ஆ. 51 - 60 ☐

இ. 61 - 70 ☐

ஈ. 71 - 80 ☐

2] பாலினம்

அ. ஆண் ☐

ஆ. பெண் ☐

3] உடல் உழைப்பின் வகை

அ. இலகுவான வேலை ☐

ஆ. மிதமான வேலை ☐

இ. கடினமான வேலை ☐

4] உடல் நிறை குறியீட்டெண்

அ. குறைவான எடை ☐

ஆ. சரியான எடை ☐

இ. அதிக எடை ☐

5] மூட்டு வலியின் கால அளவு (வருடங்களில்)

அ. <1 ☐

ஆ. 1 – 3 ☐

இ. 4 – 5 ☐

ஈ. > 5 ☐

6] மூட்டு வலிக்கு எந்தவிதமான சிகிச்சை எடுத்துக் கொண்டீர்கள்?

அ. மாத்திரை ☐

ஆ. இயன்முறை சிகிச்சை ☐

இ. இரண்டும் ☐

ஈ. எதுவும் இல்லை ☐

பகுதி – ஆ
வடிவமைக்கப்பட்ட வினாத்தாள்
கீழே கொடுக்கப்பட்ட கேள்விகளுக்கு சரியான விடையை (✓) குறிக்கவும்

நோய் அறிகுறிகள்	மதிப்பெண் 0	மதிப்பெண் 1	மதிப்பெண் 2	மதிப்பெண் 3	மதிப்பெண் 4
காலையில் நீங்கள் முதல் தடவையாக படுக்கையில் இருந்து எழும்போது உங்கள் முழங்கால் இணைப்புகளின் விறைப்புத் தன்மை எவ்வளவு கடினமாக இருந்தது	எதுவும் இல்லை	சிறிதளவு மென்மையாக இருந்தது	மிதமானதாக இருந்தது	கடுமையாக இருந்தது	மிகவும் கடுமையாக இருந்தது
பகலின் பிற்பகுதியில் (மாலை நேரங்களில்) உட்கார்ந்த போதும் படுத்துக்கொண்டு இருந்தபோதும் ஓய்வு எடுத்துக்கொண்டுருந்த போதும் விறைப்பு எப்படி இருந்தது?	எதுவும் இல்லை	சிறிதளவு மென்மையாக இருந்தது	மிதமானதாக இருந்தது	கடுமையாக இருந்தது	மிகவும் கடுமையாக இருந்தது
உங்கள் முழங்கால் மூட்டில் வீக்கம் இருந்ததா?	எப்போதும் இல்லை	எப்போதோ ஒரு தடவை இருந்தது	சில நேரங்களில் இருந்தது	அடிக்கடி இருந்தது	எல்லா நேரங்களிலும் இருந்தது
உங்கள் முழங்கால் அசைக்கப்பட்ட பொழுது உராய்வுசத்தம் அல்லது கிளிக்கிளிக் சப்தம் அல்லது வேறு ஏதாவது சத்தம் கேட்டதா?	எப்போதும் இல்லை	எப்போதோ ஒரு தடவை இருந்தது	சில நேரங்களில் இருந்தது	அடிக்கடி இருந்தது	எல்லா நேரங்களிலும் இருந்தது
நடக்கும் பொழுது உங்கள் முழங்கால் மூட்டு பிடித்துக்கொண்டதா?	எப்போதும் இல்லை	எப்போதோ ஒரு தடவை இருந்தது	சில நேரங்களில் இருந்தது	அடிக்கடி இருந்தது	எல்லா நேரங்களிலும் இருந்தது
உங்கள் முழங்காலை முழுதுமாக நீட்ட முடிந்ததா?	எல்லா நேரங்களிலும் முடிந்தது	அடிக்கடி முடிந்தது	சில நேரங்களில் முடிந்தது	எப்போதாவது ஒரு முறை மட்டும்	எப்போதும் முடியவில்லை
உங்கள் முழங்காலை முழுதுமாக வளைக்க முடிந்ததா?	எல்லா நேரங்களிலும் முடிந்தது	அடிக்கடி முடிந்தது	சில நேரங்களில் முடிந்தது	எப்போதாவது ஒரு முறை மட்டும்	எப்போதும் முடியவில்லை

கடந்தவாரம் அடியில் குறிப்பிடப்பட்டுள்ள வேலைகளைச் செய்தபோது உங்கள் முழங்கால் மூட்டுவலி எந்த அளவிற்கு இருந்ததை உணர்ந்தீர்கள்?					
முழங்கால் மூட்டு வலி	**மதிப்பெண் 0**	**மதிப்பெண் 1**	**மதிப்பெண் 2**	**மதிப்பெண் 3**	**மதிப்பெண் 4**
உங்கள் முழங்காலைத் திருப்பிய போதும் சுழற்றியபோதும்	வலி இல்லை	சிறிதளவு வலி இருந்தது	மிதமானதாக வலி இருந்தது	அதிகமான வலி இருந்தது	கடுமையாக வலி இருந்தது
முழங்காலை முழுமையாய் நேராக நீட்டியபோது எப்படி இருந்தது?	வலி இல்லை	சிறிதளவு வலி இருந்தது	மிதமானதாக வலி இருந்தது	அதிகமான வலி இருந்தது	கடுமையாக வலி இருந்தது
முழங்காலை முழுவதுமாக வளைத்தபொழுது	வலி இல்லை	சிறிதளவு வலி இருந்தது	மிதமானதாக வலி இருந்தது	அதிகமான வலி இருந்தது	கடுமையாக வலி இருந்தது
சமதளத்தில் நடந்த போது	வலி இல்லை	சிறிதளவு வலி இருந்தது	மிதமானதாக வலி இருந்தது	அதிகமான வலி இருந்தது	கடுமையாக வலி இருந்தது
மாடிப்படிகளை ஏறும்போது அல்லது இறங்கும் போது	வலி இல்லை	சிறிதளவு வலி இருந்தது	மிதமானதாக வலி இருந்தது	அதிகமான வலி இருந்தது	கடுமையாக வலி இருந்தது
இரவுநேரத்தில் படுக்கையில் படுத்துக்கொண்டு இருக்கும் போது	வலி இல்லை	சிறிதளவு வலி இருந்தது	மிதமானதாக வலி இருந்தது	அதிகமான வலி இருந்தது	கடுமையாக வலி இருந்தது
உட்கார்ந்துகொண்டு அல்லது காலைப் பரப்பிக் கொண்டு உள்ளபொழுது	வலி இல்லை	சிறிதளவு வலி இருந்தது	மிதமானதாக வலி இருந்தது	அதிகமான வலி இருந்தது	கடுமையாக வலி இருந்தது
எழுந்து நிற்கும் பொழுது	வலி இல்லை	சிறிதளவு வலி இருந்தது	மிதமானதாக வலி இருந்தது	அதிகமான வலி இருந்தது	கடுமையாக வலி இருந்தது

மொத்த மதிப்பெண்

0 – 15 - லேசான முழங்கால் தொடர்பான அறிகுறிகள்

16 – 30 - மிதமான முழங்கால் தொடர்பான அறிகுறிகள்

31 – 45 - கடுமையான முழங்கால் தொடர்பான அறிகுறிகள்

46 – 60 - தீவிர முழங்கால் தொடர்பான அறிகுறிகள்